

**CLAIMS**

1. A synthetic peptide comprising the amino acid sequence GPRLGYSWHX, wherein the amino acids are D-amino acids and X is any amino acid.
2. A peptide according to claim 1, wherein X is E, Q, P or G.
3. A peptide according to either of claims 1 or 2, comprising the amino acid sequence GPRLGYSWHE (SEQ ID NO:1).
4. A peptide according to any one of claims 1 to 3, which further includes a cysteine residue at the C-terminus end.
5. A peptide according to claim 4, comprising the amino acid sequence GPRLGYSWHEC (SEQ ID NO:2).
6. A vaccine composition capable of eliciting an immunological response in an animal to which it is administered, the composition comprising:
  - (a) an immunogenic peptide according to any one of claims 1 to 5; and
  - (b) a pharmaceutically acceptable carrier or excipient.
7. A vaccine composition according to claim 6, wherein the peptide is not conjugated to or administered with a carrier or an adjuvant.
8. A vaccine composition according to claim 6, wherein the peptide is conjugated to or administered with at least one carrier or adjuvant.
9. A vaccine composition according to claim 8, wherein the adjuvant is selected from the group consisting of CpGs, M59, IFA (Incomplete Freund's adjuvant), complete Freund's adjuvant, alum, bile salts, vitamins and attenuated toxins.
10. A vaccine composition according to claim 9, wherein the attenuated toxins are selected from pertussis and cholera.
11. A vaccine composition according to any one of claims 6 to 10, for use in a method of contraception or for controlling fertility or heat in an animal.

12. A vaccine composition according to any one of claims 6 to 11, for use in treating a disease in an animal.
- 5 13. A vaccine composition according to any one of claims 6 to 12, wherein the animal is a human, a domestic animal, a wild animal, livestock or a fish.
14. A vaccine composition according to either of claims 12 or 13, wherein the disease is a sex hormone-related disease in a human.
- 10 15. A vaccine composition according to claim 14, wherein the disease is prostatic cancer, breast cancer, ovarian cancer, uterine cancer, endometriosis, uterine fibroids or precocious puberty.
- 15 16. A vaccine composition according to any one of claims 6 to 15, which is administered orally, nasally, sub-cutaneously or trans-cutaneously to the animal.
17. A method of treating a disease in an animal by administering a peptide according to any one of claims 1 to 5 to the animal in an amount sufficient to elicit an immune response against GnRH in the animal.
- 20 18. A method according to claim 17, wherein the disease is a sex hormone-related disease in a human.
- 25 19. A method according to claim 18, wherein the disease is prostatic cancer, breast cancer, ovarian cancer, uterine cancer, endometriosis, uterine fibroids or precocious puberty.
- 30 20. A method of controlling fertility in an animal by administering a peptide according to any one of claims 1 to 5 to the animal in an amount sufficient to elicit an immune response against GnRH which inhibits or substantially reduces fertility of the animal.
- 35 21. A method of controlling the heat cycle in an animal by administering a peptide according to any one of claims 1 to 5 to the animal in an amount sufficient to elicit an immune response against GnRH which inhibits or delays the heat cycle of the animal.
22. A method of contraception comprising the step of administering to an animal a peptide according to any one of claims 1 to 5.

23. The use of a peptide according to any one of claims 1 to 5 in the manufacture of a medicament for use in a method of treating a disease in an animal.
- 5 24. The use of a peptide according to claim 23, wherein the animal is a human.
25. The use of a peptide according to claim 24, wherein the disease is a sex hormone-related disease.
- 10 26. The use of a peptide according to either of claims 24 or 25, wherein the disease is prostatic cancer, breast cancer, ovarian cancer, uterine cancer, endometriosis, uterine fibroids or precocious puberty.
- 15 27. The use of a peptide according to any one of claims 1 to 5 in the manufacture of a medicament for controlling fertility or heat in an animal.
28. A peptide according to any one of claims 1 to 5, which is conjugated to another peptide.
- 20 29. A peptide according to claim 28, which is conjugated to the natural gonadotropin-releasing hormone (GnRH) peptide.